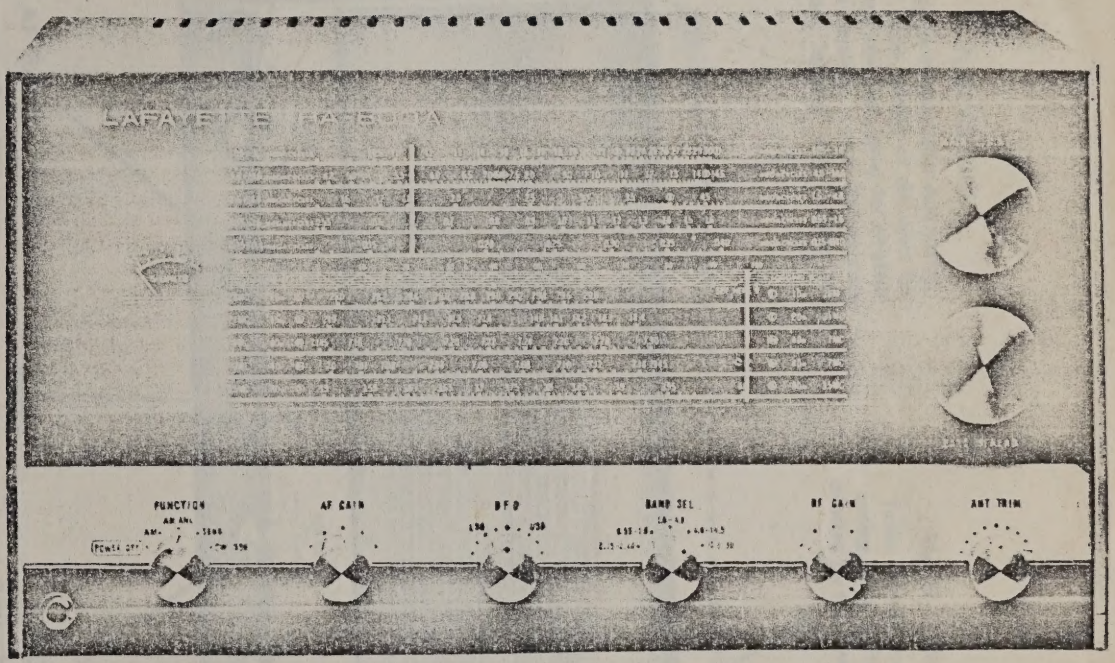
LAFAYETTE

# Model HA-600A

(Stock No. 99-25991WX)

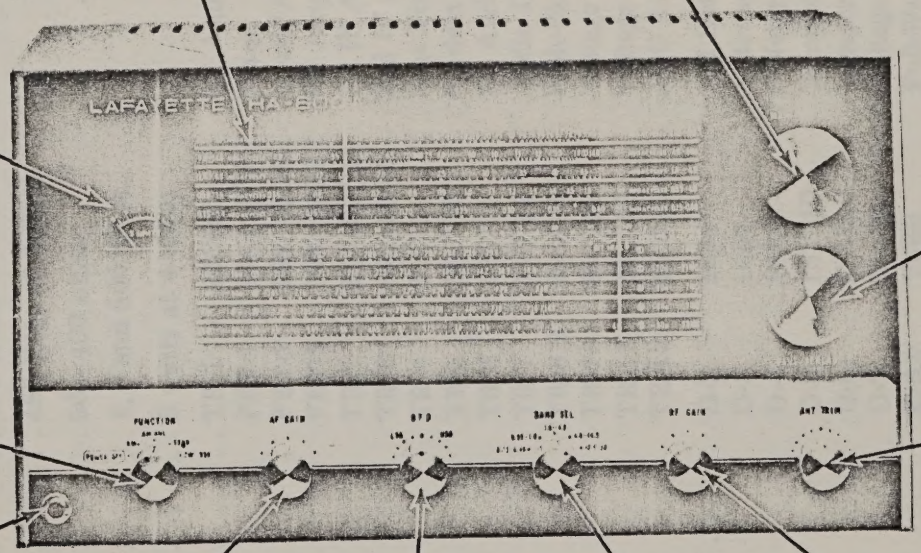



# SOLID STATE AMATEUR AND SHORTWAVE RECEIVER

*INSTALLATION AND OPERATING MANUAL*

LRE

LAFAYETTE RADIO ELECTRONICS CORPORATION



**TUNING DIAL**

Large illuminated slide-rule tuning dial; upper portion of dial scale for general coverage, lower for amateur band coverage. Lower dial scale also includes "logging" scale for fine tuning.

**MAIN TUNING**

Tunes receiver over entire tuning range of frequencies selected by the Band Selector.

**S-METER**

Illuminated tuning meter reads relative signal strength of all incoming signals.

**BAND SPREAD**

Used for amateur band coverage or as a fine tuning control for general coverage.

**FUNCTION SWITCH**

Switches receiver "ON" and selects desired mode of operation.

**ANT TRIM**

Matches the receiver to the antenna.

**PHONE JACK**

Standard phone jack for low-impedance headphones.

**RF GAIN**

Used as a gain control for CW and SSB operation.

**AF GAIN**

Varies the audio output level to the speaker.

**BFO**

In the CW SSB mode, varies the pitch of the CW signal or tunes either lower (LSB) or upper (USB) sideband.

**BAND SELECTOR**

Selects frequency coverage of the desired band.

**Figure 1. Front View**

# HA – 600A

## TECHINICAL SPECIFICATIONS

| | | | |
|---|---|---|---|
| FREQUENCY RANGE | 150 KHz to 30 MHz in five bands. | | |
| | 0.15 - 0.40 MHz | | |
| | 0.55 - 1.6 MHz | | |
| | 1.6 - 4.8 MHz | | |
| | 4.8 - 14.5 MHz | | |
| | 10.5 - 30.0 MHz | | |
| SENSITIVITY | 1μV at 10 db S/N ratio. | | |
| SELECTIVITY | ±6 KHz at 60 db down; ±2 KHz at 6 db down. | | |
| INTERMEDIATE FREQUENCY | 455 KHz. | | |
| BFO FREQUENCY | 455 KHz ±2.5 KHz. | | |
| ANTENNA INPUT IMPEDANCE | 50 - 400 ohms. | | |
| AUDIO OUTPUT IMPEDANCE | 4, 8 and 500 ohms. | | |
| AUDIO POWER OUTPUT | 3 watts at 4 ohms. | | |
| TRANSISTOR COMPLEMENT | TR-1 | 2SC605 | RF Amplifier |
| | FET-1 | 2SK19[GR] | Mixer |
| | FET-2 | 2SK19[GR] | Local Oscillator |
| | FET-3 | 2SK19[GR] | RF Amplifier |
| | TR-2 | 2SC183[R] | 1st IF Amplifier |
| | TR-3 | 2SC183[R] | 2nd IF Amplifier |
| | TR-4 | 2SC710 | Beat Frequency Oscillator |
| | TR-5 | 2SC710 | Product Detector |
| | TR-6 | 2SC712 | 1st Audio |
| | TR-7 | 2SC712 | Audio Driver |
| | TR-8,9 | 2SC1013 | Push-Pull Audio Output |
| | TR-10 | 2SC712 | Voltage Regulator |
| | TR-11 | 2SC712 | Voltage Regulator |
| | TR-12 | 2SC712 | AGC Amplifier |
| DIODES | D-2 | 1S34 | AM Detector |
| | D-3 | 1S34 | Automatic Noise Limiter |
| | D-4 | 1S34 | S-Meter Rectifier |
| | D-5 | 1S1210 | Temperature Compensation |
| | D-6 | 1S1210 | Temperature Compensation |
| | D-7 | RD-7A | Voltage Regulator |
| | D-8,9 | V06B | Full-Wave Rectifiers |
| | D-10 | RD-7A | Voltage Regulator [Zener] |
| POWER REQUIREMENTS | 105 - 120 volts, 50/60 Hz AC | | |
| DIMENSIONS | 15" W. x 9¾" D. x 8¼" H. | | |
| NET WEIGHT | 17 lbs. | | |

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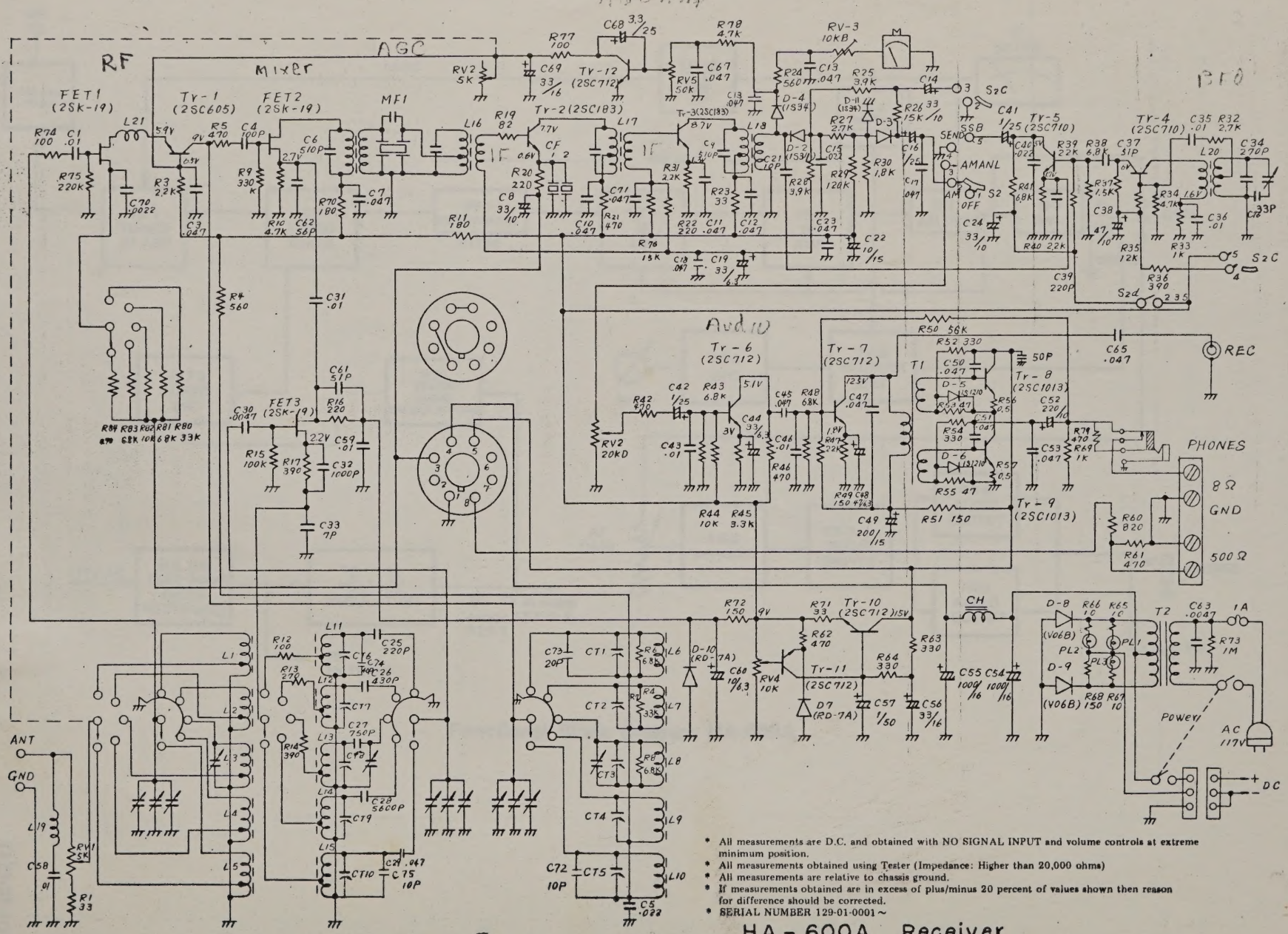
## Table 3. Alignment Chart

| STEP | INPUT SIGNAL AND S.G. COUPLING | BAND SELECTOR | MAIN TUNING DIAL SETTING | ADJUST | OUTPUT INDICATION |
|---|---|---|---|---|---|
| IF and mechanical filter alignment | 455 KHz at Point "A" on VC-1 (topside) | .55 - 1.6 | .55 MHz | MF-1, L16 (underside), L17, L19 (topside). Adjustments should be repeated several times to insure that all adjustments are peaked at 455 KHz | Maximum output on AC Voltmeter (connected across speaker output terminals). |
| RF alignment (S.G. across antenna terminals) See note below | .16 MHz ( 160 KHz)<br>.38 MHz ( 380 KHz)<br>.25 MHz ( 250 KHz) | 0.15 - 0.40 | .16 MHz<br>.38 MHz<br>.25 MHz | L11 (Osc) L6 (Mixer)<br>CT-6 (Osc) CT-1 (Mixer)<br>L1 (Ant) | |
| | .6 MHz ( 600 KHz)<br>1.4 MHz (1400 KHz)<br>1.0 MHz (1000 KHz) | 0.55 - 1.6 | .6 MHz<br>1.4 MHz<br>1.0 MHz | L12 (Osc) L7 (Mixer)<br>CT-7 (Osc) CT-2 (Mixer)<br>L2 (Ant) | |
| | 1.8 MHz (1800 KHz)<br>4.0 MHz (4000 KHz)<br>2.5 MHz (2500 KHz) | 1.6 - 4.8 | 1.8 MHz<br>4.0 MHz<br>2.5 MHz | L13 (Osc) L8 (Mixer)<br>CT-8 (Osc) CT-3 (Mixer)<br>L3 (Ant) | |
| | 5.0 MHz<br>14.0 MHz<br>8.0 MHz | 4.8 - 14.5 | 5.0 MHz<br>14.0 MHz<br>8.0 MHz | L14 (Osc) L9 (Mixer)<br>CT-9 (Osc) CT-4 (Mixer)<br>L4 (Ant) | |
| | 11.0 MHz<br>29.0 MHz<br>16.0 MHz | 10.5 - 30 | 11.0 MHz<br>29.0 MHz<br>16.0 MHz | L15 (Osc) L10 (Mixer)<br>CT-10 (Osc) CT-5 (Mixer)<br>L5 (Ant) | |
| BFO* | 455 KHz (unmodulated) across antenna terminals | .55 - 1.6 | .55 MHz | L20 (ropside) | Zero beat (minimum reading on AC Voltmeter). |
| S-METER | 7.0 MHz (100$\mu$V level) across antenna terminals | 4.8 - 14.5 | 7.0 MHz | RV-3 | "S-9" on front panel S-meter. |

* Switch FUNCTION control to CW SSB position, and BFO control to center position.

Note: All "Osc" and "Mixer" adjustments should be repeated for each band until calibration is correct at both ends of the dial.

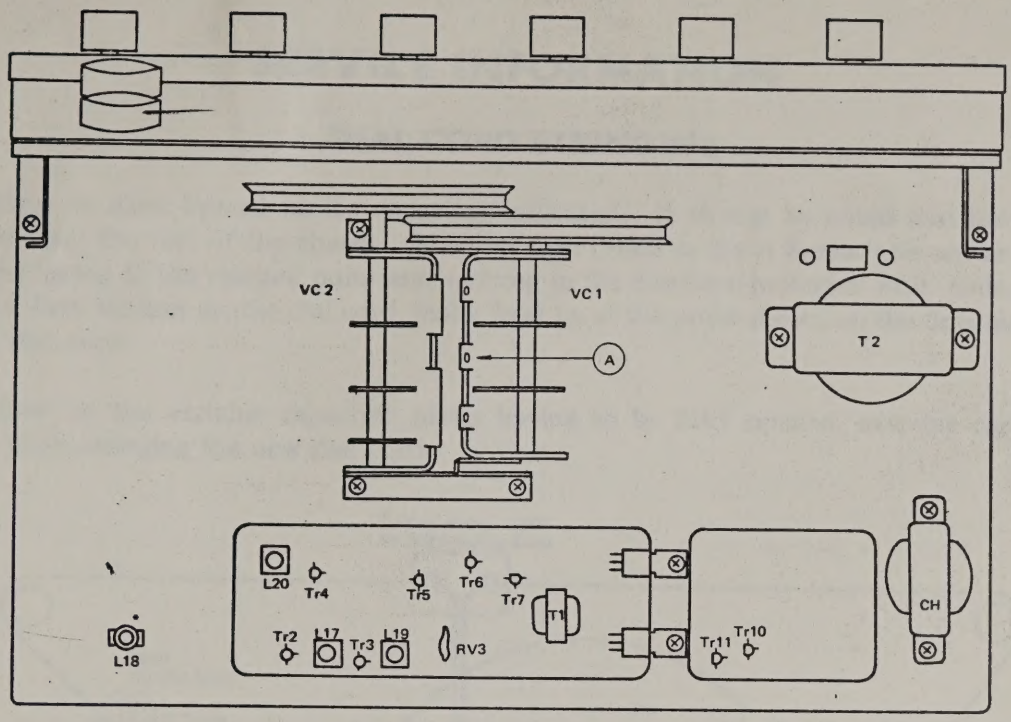
1. On all bands, the oscillator should be set on the high frequency side of the incoming signal.
2. Unless otherwise specified, the signal generator should be set for 400 Hz 30% modulation at the alignment frequency.
3. L18 has been factory-adjusted for maximum rejection of 455 KHz and does not usually need re-adjustment.




- All measurements are D.C. and obtained with NO SIGNAL INPUT and volume controls at extreme minimum position.
- All measurements obtained using Tester (Impedance: Higher than 20,000 ohms)
- All measurements are relative to chassis ground.
- If measurements obtained are in excess of plus/minus 20 percent of values shown then reason for difference should be corrected.
- SERIAL NUMBER 129-01-0001 ~

# HA-600A Receiver

**Functional Block Diagram HA-600A**




* L18 factory-set for max 455 KHz rejection, and does not require re-adjustment.

**Figure 6. Adjustment Points - Topside**

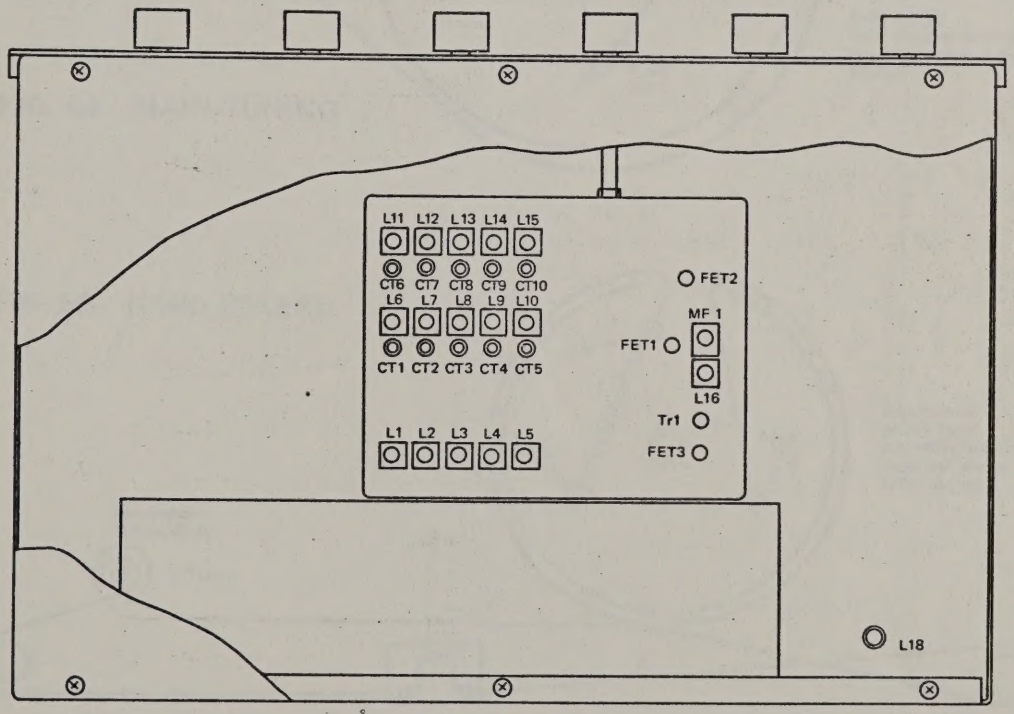



**Figure 6. Adjustment Points - Underside**

# SERVICE INFORMATION

## DIAL CORD STRINGING

Set the Main or Band Spread tuning capacitor indicated. It should be noted that the illustrations are viewed from the rear of the chassis. In either case (Main or Band Spread) tie one end of the dial cord to the spring at the starting point and restring in the direction indicated with moderate tension. Applying a firm tension on the dial cord, make final tie at the point shown on the drawing. Cut away all excess dial cord.

NOTE: Due to the variable capacitor plates having to be fully opened, extreme care should be exercised while stringing the new dial cord.

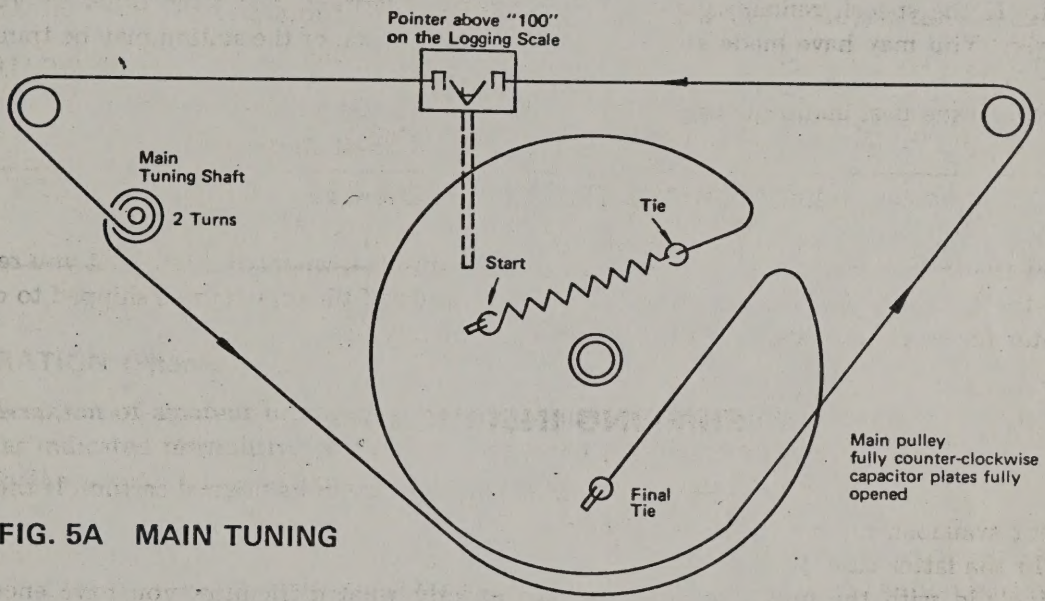



FIG. 5A MAIN TUNING

FIG. 5B BAND SPREAD